REMARKS

Claims 1-7, 9-12, 14-25, 27-30, 32-43, 45-48, 50-58, and 60-65, and 66-67 are pending in this application. By this Amendment, claims 66-67 are added. Reconsideration and allowance in view of the following remarks is respectfully requested.

I. The Allowed Subject Matter

The Office Action indicates that dependent claims 64-65 contain allowable subject matter. Applicant appreciates such indication of allowable subject. At this time, such dependent claims have not been rewritten in independent form.

II. The Drawings

The Office Action objects to the drawings indicating that Figure 1 should be designated by a legend such as "Prior Art." In response, the drawings have been amended to label Figure 1 as "Background Art." The Examiner is requested to review and approve the amendment to the Drawings.

Accordingly, it is respectfully submitted that the drawings now satisfy all formal requirements.

III. The Claims Define Patentable Subject Matter

A. The 35 U.S.C. §102 Rejection

The Office Action rejects claims 1-6, 9-12, 14-24, 27-30, 32-42, 45-48 and 50-54 under 35 U.S.C. 102(b) as being anticipated by Granville (U.S. Patent No. 5,181,026). The rejection is respectfully traversed.

Claim 1 recites a "a voltage divider system (102), comprising: a high voltage impedance element (104), connected to an input node for receiving an input signal; a low voltage impedance element (106), connected to the high voltage impedance element (104); at least one guard

element (118), the at least one guard element (118) being coupled between the high voltage impedance element (104) and ground; wherein the at least one guard element (118) comprises at least one capacitive element; and wherein the at least one guard element (118) further comprises at least one resistive guard element (124) coupled to the at least one capacitive element."

It is respectfully submitted that Granville fails to teach or suggest the claimed features and in particular the guard element comprising of at least one resistive guard element coupled to the at least one capacitive element, as recited in claim 1.

The Office Action asserts, on page 3, that Granville teaches the various features of the invention as recited in claim 1. In particular, the Office Action asserts the Granville teaches at least one guard element/means (the combination of the resistive link 81 and the shield ring 82), the at least one guard element being coupled between the high voltage impedance element and ground (See Figure 1A).

Further, the Office Action asserts that Granville teaches wherein the at least one guard element comprises at least one compacitive element (shield ring 82), and wherein the at least one guard element further comprises at least one resistive guard element (resistive link 81) coupled to the at least one capacitive element (shield ring 82). Further, on page 4, the Office Action asserts that Granville discloses that the guard element (shield rings 82) shunts stray capacitive current to ground (column 20, lines 51-55), and the shunted capacitive currents stabilize a frequency response of the voltage divider (column 21, lines 21-67).

These assertions are respectfully traversed. It is submitted that Granville is fundamentally different than the claimed invention and fails to teach each and every feature of the claimed invention.

Granville, as described in column 11, is directed to a power line monitoring system for measuring conductor line voltage, current, electric field as a function of time referenced to ground, phase angle between the current and the electric field phasor, temperature, and ambient temperature. Granville teaches that the system can be used for power transmission and distribution applications including measuring ampacity and establishing dynamic thermal line rating, measuring harmonics, revenue metering, system protection/fault detection/protective relaying, load/energy management, networking, data acquisition including waveform data, automation and supervisory control. The monitoring system is attached directly to each high voltage power transmission phase conductor line to take the data measurements which then are sent through a fiber optic data link to a ground based receiving station for processing. Further, Granville teaches, for example, that optionally the data can be transmitted via radio transmissions to a ground receiving station when the monitoring system measuring station is in a remote location or a location where ground electric power is not available.

The Office Action asserts that Granville teaches the claimed at least one capacitive element (shield ring 82). This assertion is traversed. In column 20, lines 41-62, Granville teaches a voltage sensor voltage divider resistive link 83, which is composed of resistances R_s and R_L, is shielded by a twin resistance outer shield resistive link 81. Granville describes that twin resistance means that the resistance of R_s equals that of R_{ss}, and the resistance of R_L equals that of R_{Ls}, where R_{ss} is the small outer shield resistive link resistance, and R_{Ls} is the large outer shield resistive link resistance. The outer shield resistive link 81 has vertically spaced *electrically conductive shield rings 82*, which in FIG. 1 are indicated only by dotted lines, and which are shown in detail in FIG. 2. Shield rings 82 enclose the voltage sensor resistive link 83, and thereby reduce the effect of stray capacitance capacitive currents which are driven by the

voltage gradient between the resistive link 83 current and the ground. The stray capacitance electrically couples across the voltage gradient between the high voltage resistive link current and a sizable area of the ground plane of the earth's surface surrounding the ground terminus of the resistive link.

Accordingly, Granville teaches that shield rings 82 enclose the voltage sensor resistive link 83, and thereby reduce the effect of stray capacitance. It is submitted that the shield rings of Granville cannot fairly be interpreted to teach the capacitive element of claim 1. The shield rings 82 reduce the effect of stray capacitance, with no teaching of providing capacitance of themselves. Accordingly, such structure of Granville is fundamentally different than the claimed capacitive element of claim 1.

To explain further, Granville teaches in column 21, that stray capacitance is a distributed capacitance between every point along the voltage sensor voltage divider resistive link 83 and the ground plane. In column 21, lines 20-32, Granville teaches that a capacitive coupling forms a quasi parallel or quasi shunt, complex of voltage sensor voltage divider circuit current conduction pathways transporting charge from the voltage sensor voltage divider resistive link across the line to ground voltage.

Granville teaches that Quasi parallel or quasi shunt current conduction pathways mean that the capacitive paths to ground physically terminate over a sizable area of the earth's ground plane surrounding the singular physical ground terminus of the resistive link. These pathways form an aggregate capacitive reactance voltage divider impedance component. In a high voltage application, this capacitive reactance impedance in ohms can be less than that of the large ohmic resistance of the voltage sensor resistive link 83 in ohms. Thus, Granville teaches that a

significant portion of the resistive link current can be lost when the resistive link is used on high voltage power company transmission lines.

In column 21, lines 52-63, Granville describes that the voltage sensor voltage divider unique design favorably minimizes the variable ΔV, the voltage gradient "seen" by the voltage sensor voltage divider resistive link, and thus favorably *reduces the stray capacitance current lost from the resistive link.* That favorable result is accomplished by a twin resistance outer shield resistive link 81, to which is attached a closely spaced series of outer shield rings 82, which generate a near zero voltage gradient in the horizontal plane surrounding each incremental linear segment along the vertical length of the resistive link 83 from the overhead power transmission line down to the ground. Thus, the ring shields 82 of the outer shield resistive link 81 create an equipotential, or isovoltaic horizontal plane within the ring shields 82 which enclose the voltage sensor voltage divider resistive link 83. This means, as described by Granville, there is a near zero voltage gradient between the voltage sensor resistive link 83 and the outer shield resistive link 81 shield rings 82. Thus, by using the outer shield resistive link 81 with its outer rings 82 enclosing the inner voltage sensor voltage divider resistive link 83, the voltage gradient horizontally between the inner resistive link 83 and the shield rings 82 of outer shield resistive link 81 is nearly zero, and thus there is a favorable reduction in the magnitude of the stray capacitance current charge lost out of voltage sensor voltage divider 83, in comparison with the magnitude of the stray capacitance current charge lost if the outer shield rings 82 of outer shield resistive link 81 were not present.

Thus, it is clear that the arrangement of Granville provides a favorable reduction in the magnitude of the stray capacitance current charge lost out of voltage sensor voltage divider 83. This arrangement, and in particular the rings 82, is in contrast to the claimed invnetion. The

claimed capacitive element may be characterized as a component that has appreciable capacitance. The ring shields 82 of Granville are in contrast to this - in that the ring shields of Granville simply reduce the magnitude of the stray capacitance current charge lost, with no teaching of providing capacitance of themselves.

The differences between Granville and the claimed invention are further and more prominently shown by the features of claim 9, for example, which more fully recites the capacitive element. That is, claim 9 recites the feature of wherein the at least one capacitive element comprises at least one capacitor. It is fully unclear from Applicant's review of the teachings of Granville how the ring shields 82 can, in any manner, be fairly interpreted to constitute the claimed capacitor, i.e., a component that creates capacitance. For example, see the present application on page 7, lines 6-13, as well as page 9, lines 14-22, which describes that in one implementation, the capacitors in the guard elements must be significantly larger than the stray capacitances to maintain an even voltage distribution. As noted above, the ring shields of Granville *reduce* the magnitude of the stray capacitance current charge lost with no teaching of providing capacitance of themselves, in contrast to the operation of the claimed capacitive element, i.e., the capacitor of claim 9.

Further, as discussed in the July 9, 2003 Amendment, claim 1 recites a guard element being coupled between the high voltage impedance element and ground, where the guard element is comprised of at least one resistive guard element coupled to the at least one capacitive element, and that one advantage of the claimed invention is that the resistive guard element maintains a well-defined voltage distribution at lower frequencies down to direct current, as described in the application on page 10, lines 13-15. It is respectfully submitted that the

arrangement of Granville is fundamentally different than the claimed invention and cannot provide the advantages of the claimed invention.

Accordingly, it is respectfully submitted that claim 1 defines patentable subject matter for the reasons set forth above. Further, it is submitted that claims 19, 37, and 55 define patentable subject matter for reasons similar to those set forth with respect to claim 1.

Further, the dependent claims define patentable subject matter based on their various dependencies on such independent claims, as well as the additional features such dependent claims recite.

Also, dependent claims 66 and 67 have been added to recite further novel features of the claimed invention. Withdrawal of the rejection under 35 U.S.C. 102 is respectfully requested.

B. The 35 U.S.C. §103 Rejection

The Office Action rejects claims 7, 25, 43, 55-58 and 60-63 under 35 U.S.C. 103(b) as being anticipated by Granville (U.S. Patent No. 5,181,026). The rejection is respectfully traversed.

For the reasons discussed above, it is respectfully submitted that Granville fails to teach or suggest the claimed invention recited in the independent claims. Accordingly, dependent claims 7, 25, 43, 55-58 and 60-63 recite patentable features for the reasons discussed above with respect to the independent claims, as well as for the additional features recited therein. Withdrawal of the rejection under 35 U.S.C. §103 is respectfully requested.

IV. Conclusion

For at least the reasons outlined above, Applicant respectfully asserts that the application is in condition for allowance. Favorable reconsideration and allowance of the claims are respectfully solicited.

Application Serial No. 09/987,[redacted]1 Attorney Docket No. 59589.000028

Should the Examiner believe anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned representative at the telephone number listed below.

For any fees due in connection with filing this Response, the Commissioner is hereby authorized to charge the undersigned's Deposit Account No. 50-0206.

Respectfully submitted,
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Attachment: Drawing Sheet (with Fig. 1)